

## Abstract

A multi-wavelength generating apparatus generates a wavelength division multiplexing (WDM) signal by modulating light with a single central frequency and with an electric signal having a particular pulse repetition frequency. The resulting optical spectrum configuration is controllable so that a Relative Intensity Noise (RIN) or Signal to Noise Ratio (SNR) requirement may be achieved. A modulated or pulsed light source is used to obtain a discrete spectrum with particular mode spacing, which is then modulated to permit dynamic power control for specific modes of the discrete spectrum.